



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR        | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|-----------------------------|---------------------|------------------|
| 10/585,073  | 06/29/2006  | Yohan Desieres              | 293048US2PCT        | 7713             |
| 22850 7590 11/12/2009<br>OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                             |                     |                  |
| EXAMINER<br>SMYTH, ANDREW P   |             |                             |                     |                  |
| ART UNIT<br>2881  |             | PAPER NUMBER                |                     |                  |
| NOTIFICATION DATE<br>11/12/2009   |             | DELIVERY MODE<br>ELECTRONIC |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

# Office Action Summary

**Application No.**

10/585,073

**Applicant(s)**

DESIERES ET AL.

**Examiner**

ANDREW SMYTH

**Art Unit**

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) 1-32 and 56-67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 33-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)  
Paper No(s)/Mail Date 09/29/2006, 02/06/2007
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Response to Preliminary Amendment***

1. Claims 1-32 were canceled.
2. Claims 33-67 are new claims.

### **Previous Office Action's Summary**

1. Claims 33-67 were subject to restriction and/or election requirement.
2. Claims 1-32 were canceled in a preliminary amendment.

### ***Response to Election / Restriction***

1. In response to the Restriction Requirement mailed June 10, 2009, Applicant elects, with traverse, group II, Claims 33-55.

### ***Claim Objections***

1. **Claims 35-36** objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 35-36 contain no further limitations to the structural elements of claim 33; rather, these claims recite steps of actions to be performed to the apparatus of claim 33 for its manufacture. Since an apparatus claim is limited only by its structural elements, these claims do not further limit claim 33 (see MPEP 2114).

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 33-55 are rejected under 35 U.S.C. 102(b) as being anticipated by MacDonald (US 5,363,021).

**Regarding claim 33 and 39**, MacDonald teaches an electronic emission device (abstract ; note: electron beam array, 10; ; note: the array is by definition periodic matrix of sources) including plural electron beams comprising: a first structure comprising a plurality of emitting sources (figure 1; 14, emitter ) of electron beam hybridized with a second structure (figure 1, 16, gate electrode layer, and 68, oxide layer) comprising a plurality of diaphragm openings (18, aperture opening).

**Regarding claim 34**, MacDonald teaches that the second structure includes an electrode (16, gate electrode layer is a metal which is a conductor) or a metallic or conductive or semiconductive membrane.

**Regarding claims 37 and 38**, MacDonald teaches that the diaphragm opening (18) has two different opposite opening surfaces (see figure 1, 18 at cutaway has a slopping/flat/concave/convex (depending on viewer perspective) edge which follows the contour of emitter 14, from base to top, so that 18 is a larger diameter at the bottom and

smaller diameter at the top), the opening surface of a first side of the diaphragm having an area greater than an area of the opening surface of a second side of the diaphragm.

**Regarding claim 40**, MacDonald teaches that the sources of electron beam emission and the diaphragm openings are arranged with a spacing of about a few microns to one millimeter (column 12, lines 23-24) see also (figure 1; note: if the spacing of the tips, 14, is 80 microns then the spacing between the tips and diaphragm openings, 18, is on the order of a micron).

**Regarding claims 41-43**, MacDonald teaches that a polarized anode or electrode structure (figure 6, 94, deflection plates) arranged outside the second structure (16 and 68) of diaphragm openings (18) .

**Regarding claim 44**, MacDonald teaches that the second structure comprises at least one conductive part (16) and at least one dielectric part (68 is a field oxide layer).

**Regarding claim 45**, MacDonald teaches that the second structure (figure 6, 16 and 68) comprises two levels of electrodes (16 is a control electrode and 94 the deflection plates sit atop 16) or membranes, metallic, conductive, attached to at least one dielectric layer (68 is a field oxide layer).

**Regarding claims 46-47**, MacDonald teaches that the second structure includes, around zones of the diaphragm openings, a thickness of about a fraction of a micrometer to a few hundred micrometers (column 12, lines 23-24) see also (figure 1; note: if the spacing of the tips, 14, is 80 microns then the spacing between the tips and diaphragm openings, 18, is on the order of a micron; which also implies that the thickness of the diaphragm openings, 18, is on the order of a micron) and also that the

second structure includes, outside zones of the diaphragm openings, a thickness of about one micrometer to around one millimeter (column 12, lines 23-24) see also (figure 1; note: if the spacing of the tips, 14, is 80 microns then the spacing between the tips and diaphragm openings, 18, is on the order of a micron; which also implies that the thickness of the diaphragm openings, 18, and also the thickness of the second structure is on the order of a micron to a millimeter)

**Regarding claim 48**, MacDonald teaches that the second structure includes an alveolar structure (figure 1, ; note: grooves 90) insulating each opening (each 12 is insulated by a 90) or plural groups of openings from one another, such that each opening or each group of openings is subjected to a respective polarization potential.

**Regarding claim 49**, MacDonald teaches that one side of the diaphragm of the second structure is dipped into an electric field for acceleration or focusing of electrons (figure 6, deflection plate 94 on top side of (68 and 16)).

**Regarding claim 50**, MacDonald teaches that the second structure of diaphragm opening comprises two opposite sides (figure 6, 16 and 68 has top side and a bottom side which faces the substrate 50), a first side facing an electric field (top side has deflection plates 94) and a second side facing another electric field (bottom side faces field created solely by emitter 14).

**Regarding claims 51-54**, MacDonald teaches that at least one diaphragm opening has two different opposite opening surfaces (figure 1, 18 which is composed of 68 and 16), the opening surface of a first side of the diaphragm having an area greater than an area of the opening surface of the second side of the diaphragm at least one side of the

diaphragm of the second structure is dipped into an electric field for acceleration or focusing of electrons (figure 6, 94), and the diaphragm openings are oriented such that the opening surface of greater area faces the electric field of greater value, the opening surface of lesser area facing the electric field of less value or in absence of an electric field (68 has a flat sloped opening from bottom to top with the larger open area at the top and 16's slope follows the slope of 14 so its open area is constant; thus the larger open area in the top of 68, which faces in figure 6, the deflection electrodes of 94; which have the electric field of greater value).

**Regarding claim 55**, MacDonald teaches that the second structure is subjected to at least one polarization potential (figure 6; 16 and 68 are subjected to deflection plates 94 potential).

### ***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent prior art is closely related art that individually or in combination could be considered grounds for rejection. See references cited for a listing of the pertinent prior art found and the prior art found.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Smyth whose telephone number is 571-270-1746. The examiner can normally be reached on 7:30AM - 5:00PM; Monday thru Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-

273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. S./

Examiner, Art Unit 2881

/ROBERT KIM/  
Supervisory Patent Examiner, Art Unit 2881